

**NOMINATING PARTY:** The United States of America  
**DATE:** JULY 14, 2011

**FILE NAME:** USA CUE13 MBTOC REPLIES 07-2011

**BRIEF DESCRIPTIVE TITLE :**

Methyl Bromide Critical Use Nomination for 2013, U.S. Replies to MBTOC Report (Submitted in 2011 for 2013 Use Season)

**CROP NAME (OPEN FIELD OR PROTECTED):** Cucurbits, Eggplant, Ornamentals, Peppers, Rose Nursery, Strawberry Fruit, Tomato and Dried Meat Products

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The U.S. is withdrawing its request for the following uses based on the data that is currently available to us having requested further justification from the applicants that would demonstrate that the lack of availability of methyl bromide will result in significant market disruption and that there are no technically and economically feasible alternatives.

**Table 1. Amount of methyl bromide (kg) to be withdrawn by the United States**

| Sector        | Applicant                                    | Methyl Bromide (kg) |
|---------------|--|---------------------|
| Cucurbits     | MarDel (Maryland & Delaware)                 | 348                 |
| Cucurbits     | Southeast Consortium                         | 7,665               |
| Pepper        | Southeast Consortium                         | 68                  |
| Nursery Stock | California Rose Growers                      | 65                  |
| Tomato        | Southeast Consortium, Maryland, and Virginia | 1,633               |
|               | <b>Total</b>                                 | 9,779               |

## Cucurbit

MBTOC (TEAP 2011) recommends a CUE of 11.899 tonnes for this use in 2013, provided the Party submits further explanation on the specific issues that have arisen for the alternatives by July 15th, 2011 recognizing that the nominated amount represents an almost complete phase-out in this industry. The USG may either support or withdraw this nominated sector at the OEWG. If the US proposes an increased amount, MBTOC will need to reassess. From this amount, 0.815 t are for Georgia squash, 0.657 tonnes for Georgia cucumber; 2.415 tonnes for Georgia melon; and 7.665 t for the Southeast region and 0.348 t for Mardel area.

## U.S. Reply

### **The U.S. is requesting that MBTOC recommend the amount nominated for Georgia cucurbits in the U.S. Nomination for one final year (2013).**

For Georgia, the U.S. review of the available information indicates that small growers (growing less than 4 ha or 10 acres of this crop) need an additional year to successfully transition to the alternatives. These small growers do not have as much experience with the alternatives and need to convert their equipment to the 3-Way mixture (1, 3-dichloropropene plus chloropicrin plus metam). The United States conducted an economic assessment of small grower's ability to convert their equipment (see Table 2 below). The assessment demonstrates that despite the 3-Way mixture being more affordable than MeBr plus chloropicrin on a per acre basis, retrofitting farm equipment to use the 3-Way mixture at a cost of \$ 3450 (Culpepper, 2011) is not affordable for growers under four acres, amortized over 10 years at 7% interest (7% is a current home equity loan rate for this region, interest on agricultural loans could be lower). However, due to variations in impacts for individual growers and uncertainties in the assumptions used in this economic analysis, farms less than 10 acres are reasonably expected to incur negative impacts from having to convert to the 3-Way mixture. Based on this assessment, the amount of methyl bromide being requested this year will be allocated to farmers with less than 4 ha (10 acres) of this crop. Small farms of this size in Georgia are a very small subset of vegetable growers and account for 10 to 15% of the vegetable farms (Census of Agriculture, 2007). There are currently no commercial fumigation/applicators in Georgia so these applications cannot be done by someone else.

**Table 2. Comparison of the Costs of Using Methyl Bromide versus the GA 3-Way on a 3, 4, and 10-Acre Tomato Farm in Georgia**

| Alternatives  | 3 Acre Farm |           | 4 Acre Farm |           | 10 Acre Farm |            |
|---|-------------|-----------|-------------|-----------|--------------|------------|
|   | MeBr:Pic    | 3-Way Mix | MeBr:Pic    | 3-Way Mix | MeBr:Pic     | 3-Way Mix  |
| Gross Revenue   | \$ 70,830   | \$ 70,830 | \$ 94,440   | \$ 94,440 | \$ 236,101   | \$ 236,101 |
| Total Operating Costs   | \$ 70,002   | \$ 69,484 | \$ 93,337   | \$ 92,646 | \$ 233,341   | \$ 231,614 |
| Net Revenue   | \$ 828      | \$ 1,346  | \$ 1,104    | \$ 1,795  | \$ 2,759     | \$ 4,487   |
| Difference between Net Revenue Earned per Farm When Applying MeBr vs. Net Revenue Earned When Applying 3-Way & Accounting for Cost to Retrofit* | N/A         | \$ (106)  | N/A         | \$ 67     | N/A          | \$ 1,104   |

**Notes:** EPA assumes retrofitting costs of \$ 3450 are amortized over a 10 year period at 7%, compounded. This interest rate is based on the assumption that farmers would be subject to the same interest rates as those on a home equity loan, which currently in Georgia for a 10-year loan are approximately 7%.

## Eggplant

MBTOC (TEAP 2011) recommends 1.381 tonnes for this use for 2013, provided the Party submits further explanation on the specific issues that have arisen for the alternatives by July 15th, 2011. Of this amount, 0.769 t are for Georgia and 0.612 t are for Florida. If substantiation is not provided, MBTOC does not recommend this nomination. The USG may either support or withdraw this nominated sector at the OEWG. If the US proposes an increased amount, MBTOC will need to reassess.

## U.S. Reply

### **The U.S. is requesting that MBTOC recommend the amount nominated for Georgia and Florida eggplant in the U.S. Nomination for one final year (2013).**

For Georgia, the U.S. review of the available information indicates that small growers (growing less than 4 ha or 10 acres of this crop) need an additional year to successfully transition to the alternatives. These small growers do not have as much experience with the alternatives and need to convert their equipment to the 3-Way mixture (1, 3-dichloropropene plus chloropicrin plus metam). The United States conducted an economic assessment of small grower's ability to convert their equipment (see Table 3 below). The assessment demonstrates that despite the 3-Way mixture being more affordable than MeBr plus chloropicrin on a per acre basis, retrofitting farm equipment to use the 3-Way mixture at a cost of \$ 3450 (Culpepper, 2011) is not affordable for growers under four acres, amortized over 10 years at 7% interest (7% is a current home equity loan rate for this region, interest on agricultural loans could be lower). However, due to variations in impacts for individual growers and uncertainties in the assumptions used in this economic analysis, farms less than 10 acres are reasonably expected to incur negative impacts from having to convert to the 3-Way mixture. Based on this assessment, the amount of methyl bromide being requested this year will be allocated to farmers with less than 10 acres of this crop. Small farms of this size in Georgia are a very small subset of vegetable growers and account for 10 to 15% of the vegetable farms (Census of Agriculture, 2007). There are currently no commercial fumigation/applicators in Georgia so these applications cannot be done by someone else.

**Table 3. Comparison of the Costs of Using Methyl Bromide versus the GA 3-Way on a 3, 4, and 10-Acre Tomato Farm in Georgia**

| Alternatives  | 3 Acre Farm |           | 4 Acre Farm |           | 10 Acre Farm |            |
|---|-------------|-----------|-------------|-----------|--------------|------------|
|   | MeBr:Pic    | 3-Way Mix | MeBr:Pic    | 3-Way Mix | MeBr:Pic     | 3-Way Mix  |
| Gross Revenue   | \$ 70,830   | \$ 70,830 | \$ 94,440   | \$ 94,440 | \$ 236,101   | \$ 236,101 |
| Total Operating Costs   | \$ 70,002   | \$ 69,484 | \$ 93,337   | \$ 92,646 | \$ 233,341   | \$ 231,614 |
| Net Revenue   | \$ 828      | \$ 1,346  | \$ 1,104    | \$ 1,795  | \$ 2,759     | \$ 4,487   |
| Difference between Net Revenue Earned per Farm When Applying MeBr vs. Net Revenue Earned When Applying 3-Way & Accounting for Cost to Retrofit* | N/A         | \$ (106)  | N/A         | \$ 67     | N/A          | \$ 1,104   |

**Notes:** EPA assumes retrofitting costs of \$ 3450 are amortized over a 10 year period at 7%, compounded. This interest rate is based on the assumption that farmers would be subject to the same interest rates as those on a home equity loan, which currently in Georgia for a 10-year loan are approximately 7%.

Florida surveyed several growers to find out their experience in 2010 with alternatives (see Table 4). The survey demonstrates that some growers still experience impacts when using the alternatives. The individuals responding to the survey describe impacts as yield loss, cost increases, or longer plant back intervals when using the alternatives. Allowing the use of methyl bromide through 2013 will provide time for Florida growers to adapt their systems to the use of the alternatives (different fumigants, potentially an herbicide treatment under the tarp, longer plant back interval, different films, etc.).

**Table 4. Florida Survey Data on Alternatives**

| <b>CROP</b>     | <b>Percent of Acres Surveyed</b> | <b>Impact * % (range)</b> |
|-----------------|----------------------------------|---------------------------|
| <b>Eggplant</b> | 4                                | Not listed                |
| <b>Pepper</b>   | 4                                | -9 % (0 to 20)            |
| <b>Tomato</b>   | 28                               | -8 % (0 to 25)            |

**Notes:** \* Impact was interpreted by respondents as yield loss, cost increase, or longer plant back intervals leading to missing a market window.

## **Ornamental**

MBTOC (TEAP 2011) recommends a reduced amount of 40.818 tonnes for this use in 2013. This includes 39.907 t for California and 0.911 t for Florida. MBTOC has reduced the nomination by 15% for California and 25% for Florida, respectively, based on implementation of substrates, steam and uptake and improvement in MI technologies by 2013 and the registration time (and rate) for MI.

## **U.S. Reply**

**The United States agrees with the 25% reduction that MBTOC recommended for Florida ornamentals in the U.S. Nomination. The United States is requesting that MBTOC recommend the amount nominated for California ornamentals in the U.S. Nomination.**

The United States has conducted an economic assessment of ornamental production in California and Florida comparing methyl bromide plus chloropicrin to iodomethane plus chloropicrin (see Table 5 and 6). The assessment demonstrates there would be some impacts on Florida ornamental growers. Some but not all growers have been able to incorporate the alternatives into their ornamental production systems. The United States is optimistic that as growers gain experience with their own ornamental cultivars, production systems and timing schedules they will be able to use the alternatives with very few impacts. The United States believes the 25% reduction in Florida suggested by MBTOC can be sustained absent further information being provided

The situation in California is different than that in Florida because California registered Midas™ (iodomethane) in December of 2010 at lower use rates and there is no research data to determine the yield and quality impacts at the registered rates. When California registered Midas™ (iodomethane) at lower use rates it left us without any research data to determine the yield and quality impacts at the registered rates. Therefore, we have assumed a 20% yield loss using iodomethane plus chloropicrin until we obtain research data indicating the correct implications of the lower use rates. In addition, California has much larger buffer distances around sensitive

sites for iodomethane (1/2 mile buffers) and early work indicates a large percentage of acres cannot use iodomethane.

Please note that in the economic assessment net operating revenue is calculated as gross revenue minus operating costs. In general, this is a good measure of the direct losses of income that may be suffered by the users. The net operating revenue does not represent net income to the users. Net income, which indicates profitability of an operation for an enterprise, is gross revenue minus the sum of operating and fixed costs. Net income is smaller than the net operating revenue measured in this study, often substantially so. We did not include fixed costs because they are difficult to measure and verify. In Table 5, the loss as a percentage of net operating revenue is negative, which is difficult to interpret. Therefore, in this case, the loss as a percentage of gross revenue would be a more meaningful and consistent measure of loss especially for comparison across the two states.

**Table 5. California Cut Flowers - Calla Lily & Ranunculus - Economic Impacts of Methyl Bromide Alternatives**

| California Cut Flowers – Calla Lily & Bulbs                 | METHYL BROMIDE | 1,3-D + Pic | Dazomet     | Metam Sodium | Iodo-methane + Pic (50:50) |
|---|----------------|-------------|-------------|--------------|----------------------------|
| <b>YIELD LOSS (%)</b>                                       | 0%             | 25%         | 25%         | 20%          | 20%                        |
| <b>YIELD PER HECTARE</b>                                    | 55,937         | 41,952      | 41,952      | 44,749       | 44,749                     |
| <b>* PRICE PER UNIT (U.S.\$)</b>                            | \$ 2.59        | \$ 2.59     | \$ 2.59     | \$ 2.59      | \$ 2.59                    |
| <b>= GROSS REVENUE PER HECTARE (U.S.\$)</b>                 | \$ 145,107     | \$ 108,830  | \$ 108,830  | \$ 116,086   | \$ 116,086                 |
| <b>- OPERATING COSTS PER HECTARE (U.S.\$)</b>               | \$ 161,824     | \$ 160,685  | \$ 160,154  | \$ 158,343   | \$ 164,206                 |
| <b>= NET OPERATING REVENUE PER HECTARE (U.S.\$)</b>         | \$ (16,717)    | \$ (51,855) | \$ (51,323) | \$ (42,257)  | \$ (48,121)                |
| <b>1. LOSS PER HECTARE (U.S.\$)</b>                         | \$ -           | \$ 35,138   | \$ 34,606   | \$ 25,540    | \$ 31,404                  |
| <b>2. LOSS PER KILOGRAM OF MeBr (U.S.\$)</b>                | \$ -           | \$ 133      | \$ 131      | \$ 97        | \$ 119                     |
| <b>3. LOSS AS A PERCENTAGE OF GROSS REVENUE (%)</b>         | 0%             | 24%         | 24%         | 18%          | 22%                        |
| <b>4. LOSS AS A PERCENTAGE OF NET OPERATING REVENUE (%)</b> | 0%             | -210%       | -207%       | -153%        | -188%                      |

Yield loss of % for iodomethane in Florida is based on data from Rosskopf et al 2010 a and 2010 b.

**Table 6. Florida Cut Flowers - Lilies - Economic Impacts of Methyl Bromide Alternatives**

| Florida Cut Flowers – Lilies                         | Methyl Bromide | Iodomethane + Pic (50:50) |
|--|----------------|---------------------------|
| YIELD LOSS (%)                                       | 0%             | 0%                        |
| YIELD PER HECTARE                                    | 31,135         | 31,135                    |
| * PRICE PER UNIT (U.S.\$)                            | \$ 10.00       | \$ 10.00                  |
| = GROSS REVENUE PER HECTARE (U.S.\$)                 | \$ 311,353     | \$ 311,353                |
| - OPERATING COSTS PER HECTARE (U.S.\$)               | \$ 259,777     | \$ 262,616                |
| = NET OPERATING REVENUE PER HECTARE (U.S.\$)         | \$ 51,576      | \$ 48,737                 |
| 1. LOSS PER HECTARE (U.S.\$)                         | \$ -           | \$ 2,839                  |
| 2. LOSS PER KILOGRAM OF MeBr (U.S.\$)                | \$ -           | \$ 6.46                   |
| 3. LOSS AS A PERCENTAGE OF GROSS REVENUE (%)         | 0 %            | 1 %                       |
| 4. LOSS AS A PERCENTAGE OF NET OPERATING REVENUE (%) | 0 %            | 6 %                       |

## Pepper

MBTOC (TEAP 2011) recommends 5.673 tonnes for this use in 2013, provided the Party submits further explanation on the specific issues that have arisen for the alternatives by July 15th, 2011. If substantiation is not provided, MBTOC does not recommend this nomination. The USG may either support or withdraw this nominated sector at the OEWG. If the US proposes an increased amount, MBTOC will need to reassess the nomination. Of the recommended amount, 0.068 t is for the Southeast, 0.189 t is for Georgia and 5.415 t is for Florida.

## **U.S. Reply**

**The United States is requesting that MBTOC recommend the amount nominated for Georgia and Florida pepper in the U.S. Nomination for one final year (2013).**

For Georgia, the U.S. review of the available information indicates that small growers (growing less than 4 ha or 10 acres of this crop) need an additional year to successfully transition to the alternatives. These small growers do not have as much experience with the alternatives and need to convert their equipment to the 3-Way mixture (1,3-dichloropropene plus chloropicrin plus metam). The United States conducted an economic assessment of small grower's ability to convert their equipment (see Table 7 below). The assessment demonstrates that despite the 3-Way mixture being more affordable than MeBr plus chloropicrin on a per acre basis, retrofitting farm equipment to use the 3-Way mixture at a cost of \$ 3450 (Culpepper, 2011) is not affordable for growers under four acres, amortized over 10 years at 7% interest (7% is a current home equity loan rate for this region, interest on agricultural loans could be lower). However, due to variations in impacts for individual growers and uncertainties in the assumptions used in this economic analysis, farms less than 10 acres are reasonably expected to incur negative impacts from having to convert to the 3-Way mixture. Based on this assessment, the amount of methyl bromide being requested this year will be allocated to farmers with less than 10 acres of this crop. Small farms of this size in Georgia are a very small subset of vegetable growers and account for 10 to 15% of the vegetable farms (Census of Agriculture, 2007). There are currently no commercial fumigation/applicators in Georgia so these applications cannot be done by someone else.

**Table 7. Comparison of the Costs of Using Methyl Bromide versus the GA 3-Way on a 3, 4, and 10-Acre Tomato Farm in Georgia**

| Alternatives  | 3 Acre Farm |           | 4 Acre Farm |           | 10 Acre Farm |            |
|---|-------------|-----------|-------------|-----------|--------------|------------|
|   | MeBr:Pic    | 3-Way Mix | MeBr:Pic    |           | MeBr:Pic     | 3-Way Mix  |
| Gross Revenue   | \$ 70,830   | \$ 70,830 | \$ 94,440   | \$ 94,440 | \$ 236,101   | \$ 236,101 |
| Total Operating Costs   | \$ 70,002   | \$ 69,484 | \$ 93,337   | \$ 92,646 | \$ 233,341   | \$ 231,614 |
| Net Revenue   | \$ 828      | \$ 1,346  | \$ 1,104    | \$ 1,795  | \$ 2,759     | \$ 4,487   |
| Difference between Net Revenue Earned per Farm When Applying MeBr vs. Net Revenue Earned When Applying 3-Way & Accounting for Cost to Retrofit* | N/A         | \$ (106)  | N/A         | \$ 67     | N/A          | \$ 1,104   |

**Notes:** EPA assumes retrofitting costs of \$ 3450 are amortized over a 10 year period at 7%, compounded. This interest rate is based on the assumption that farmers would be subject to the same interest rates as those on a home equity loan, which currently in Georgia for a 10-year loan are approximately 7%.

Florida surveyed several growers to find out their experience in 2010 with alternatives (see Table 8). The survey demonstrates that some growers are still experiencing impacts when using the alternatives. The individuals responding to the survey describe impacts such as yield loss, cost increases, or longer plant back intervals when using the alternatives. Allowing the use of methyl bromide through 2013 will provide time for Florida growers to adapt their systems to the use of the alternatives (different fumigants, potentially an herbicide treatment under the tarp, longer plant back interval, different films, etc.).

**Table 8. Florida Survey Data on Alternatives**

| CROP     | Percent of Acres Surveyed | Impact * % (range) |
|----------|---------------------------|--------------------|
| Eggplant | 4                         | Not listed         |
| Pepper   | 4                         | -9 % (0 to 20)     |
| Tomato   | 28                        | -8 % (0 to 25)     |

**Notes:** \* Impact was interpreted by respondents as yield loss, cost increase, or longer plant back intervals leading to missing a market window.

### Strawberry fruit

After reviewing the MBTOC report (TEAP 2011), including the text of the minority report, TEAP made a recommendation for a reduced amount of 461.186 tonnes for strawberry fruit in California for 2013 and that the Party provide further substantiation of why the 70.551 tonnes (or part thereof) can not use alternatives demonstrated by MBTOC. The amount approved is part of the nominated amount of 531.76 t by the Party. After TEAP's Decision, a report was written by nine members of the majority to restate their position on the recommendation ... - this report was not reviewed by TEAP.

### U.S. Reply

**The United States is requesting that MBTOC recommend the amount reflected by the Majority Position as nominated for California strawberry fruit in the U.S. Nomination.**



The United States is pleased that MBTOC has agreed to the 2013 CUN for this sector, which reflects a 21% cut made by the United States based on the 2012 CUE approved by the Parties last year. However, we would like clarification why this recommendation does not appear to be reflected in the TEAP Progress report. Given the majority recommendation of MBTOC, the United States does not understand what additional information may be needed as MBTOC has already made its recommendation. Nonetheless, United States would like to do its best to address any remaining questions or concerns around the U.S. nomination.

There are several issues the United States would like to clarify.

**ISSUE #1:** The first issue is the cut to the U.S. nominated amount as recommended by the first minority report and TEAP. In its recommendation, TEAP (TEAP, 2011) noted that restoring the difference between the majority opinion of MBTOC and TEAP's recommendation, which would represent an additional 13% cut beyond the 21% cut the United States has already proposed, would require further substantiation of the critical area not able to use the alternatives. As is detailed later in this reply, the minority recommendation is based on incorrect math.

The minority's approach is based on inaccuracies in the October 2010 TEAP report. Therefore the minority has not calculated the correct amount for 2013. As described by the United States in an email of April 14 of this year, the use rate in 2012 should have been listed as 170 kg/ha (San Martini, 2011). The United States notes that on page 15, Table 4.5 of the October 2010 TEAP report (see below for a reproduction) it says "For California, the Party nominated 751.596 t (4421 ha at 170 kg/ha)." But the October 2010 TEAP then contradicts itself on page 16, where it incorrectly states "The Party has adopted a dose rate of 196 kg MB/ha in its CUN for 2012 and MBTOC has accepted this." We would like to clarify that for 2012 the U.S. nominated a use rate of 170 kg/ha (reflecting what was correctly stated on page 15 of the 2010 TEAP report) and that the parties approved 673,085 kg which at an application rate of 170 kg/ha is equivalent to 3,959 treated ha. The U.S. nominated a use rate of 175 kg/ha for use in 2011 so MBTOC would not have recommended a use rate of 196 kg/ha for 2012.

***Table 4.5. Final evaluation of the preplant soil use CUNs requested to be reviewed for 2012 by the United States after the 30<sup>th</sup> OEWS (TEAP, 2010)***

***California nomination in relation to current use of MB (page 15)***

For California, the Party nominated 751.596 t (4421 ha at 170 kg/ha). This nominated amount was 100% of the previous CUE for California in 2011.

***Restrictions to transition in California (page 16)***

In Ventura, .... The Party has adopted a dose rate of 196 kg MB/ha in its CUN for 2012 and MBTOC has accepted this, although MBTOC encourages wider use of 50:50 formulations, which still allow for complying with regulatory restrictions on Pic use.

However, the problem of the incorrect use rate and treated hectares listed by TEAP in 2010 has been perpetuated again in 2011 by the minority as seen on page 157 of the May 2011 TEAP Progress Report. The minority incorrectly states "MBTOC's recommendation for the 2010 nomination for 2012 that was approved by the Parties was based on 3,434 ha at an application rate of 196 kg/ha." The United States would like to make it clear that the number should be 3,959 ha [673,085 kg / 170 kg/ha = 3,959 ha] reflecting what was correctly stated on page 15 of the 2010 TEAP report, as well as what was correctly noted in the 2011 TEAP report in the report by some members who supported the majority position (pages 175-6).



### 8.5 Minority Reports (page 157 in TEAP, 2011)

The signatories of this Minority Report hold firmly to the view that the MB-treated area in 2013 should be calculated on the basis of the approved area in 2012, namely 3,434 ha. A 21% reduction should therefore result in a MB-treated area of no more than 2,713 ha in 2013, as this is 21% less than the area proposed for treatment in 2012 of 3,434 ha. This area of 2,713 ha would result in a recommendation by MBTOC of 461.186 tonnes of methyl bromide at the rate of 170 kg/ha (see summary of these figures in 8-4).

Thus, using the correct starting kilogram or hectare values the calculated number would agree with the amount nominated by the United States:

**TABLE 9**

**NOMINATION AMOUNT BY U.S. FOR STRAWBERRY FRUIT IN 2010 FOR USE IN 2012:**

| SECTOR  |                | California Strawberry Commission |
|---|----------------|----------------------------------|
| Quantity Requested for 2011:                  | Amount (kg)    | 952,543                          |
| Quantity Recommended by MBTOC/TEAP for 2011 : | Amount (kg)    | 751,596                          |
| Quantity Approved by Parties for 2011:        | Amount (kg)    | 751,596                          |
|   | Area (ha)      | 4,421                            |
|   | Rate           | 170                              |
| Transition from 2011 Baseline Adjusted Value  | Percentage (%) | 0%                               |
| Quantity Required for 2012 Nomination:        | Amount (kg)    | 751,596                          |
|   | Area (ha)      | 4421                             |
|   | Rate           | 170                              |

**ISSUE #2:** The second issue the U.S. would like to address is the number of acres of strawberry fruit grown in California. During the MBTOC and U.S. bilateral in Turkey we were told that MBTOC uses the California Department of Pesticide Data (DPR), Pesticide Usage Report (PUR) to estimate strawberry acreage. During that meeting, the U.S. also pointed out that the California DPR database is designed to accurately track pesticide usage not crop acres and consistently under-reports strawberry acres thus resulting in an under-estimate of California strawberry production. Table 10 shows that using the MBTOC methodology as described in the 2010 MBTOC meeting in Spain and again confirmed at the 2011 MBTOC meeting in Turkey can lead to an assessment that would not account for 5,469 acres or 16% of California strawberry production.

**Table 10.** Area by county of California strawberry fruit and percent under-reported by California Department of Pesticide Regulation based on California Department of Food and Agriculture data.

| <b>County</b>   | <b>2011 acres</b> | <b>DPR under-reported (%)</b> | <b>Acres potentially missing from MBTOC assessment</b> |
|-----------------|-------------------|-------------------------------|--|
| Monterey        | 10,701            | 7.9%                          | 845  |
| San Luis Obispo | 2,789             | 28.1%                         | 784  |
| Santa Barbara   | 7,249             | 28.1%                         | 2037   |
| Santa Cruz      | 2,647             | 7.9%                          | 209  |
| Ventura         | 10,419            | 15.3%                         | 1594   |
| <b>Total</b>    | <b>33,805</b>     |                               | <b>5469</b>  |

The U.S. considers the California Department of Food and Agriculture (CDFA) to be a more appropriate authority of estimating crop acreage than the PUR database, which is not designed to estimate total crop acreage. The CDFA estimates agree quite closely with the CSC estimates (see Table 11). By using a lower estimate of strawberry acres (from the PUR database) MBTOC would over-estimate the amount of acres that could be grown under the Telone™ township cap. In addition it could lead to an over-estimate of the acres that could be grown with straight chloropicrin.

**Table 11. Comparison of California Department of Food and Agriculture and California Strawberry Commission strawberry acreage estimates from 2001 through 2011.**

| <b>Year</b> | <b>CSC Strawberry Acreage Estimate<sup>1</sup></b> |               |                |                              | <b>CDFA Estimate<sup>3</sup></b> | <b>Difference</b> |
|-------------|--|---------------|----------------|------------------------------|----------------------------------|-------------------|
|             | <b>Fall</b>  | <b>Summer</b> | <b>Organic</b> | <b>CSC Total<sup>2</sup></b> |                                  |                   |
| <b>2001</b> | na   | Na            | 305            | 25,143                       | 26,400                           | 1,257             |
| <b>2002</b> | 23,365   | 3,464         | 378            | 26,829                       | 28,500                           | 1,671             |
| <b>2003</b> | 24,286   | 3,944         | 607            | 28,230                       | 29,600                           | 1,370             |
| <b>2004</b> | 26,847   | 4,792         | 607            | 31,639                       | 33,200                           | 1,561             |
| <b>2005</b> | 28,625   | 4,012         | 541            | 32,637                       | 34,300                           | 1,663             |
| <b>2006</b> | 29,187   | 4,082         | 965            | 33,269                       | 35,800                           | 2,531             |
| <b>2007</b> | 29,937   | 4,704         | 1,575          | 34,641                       | 35,500                           | 859               |
| <b>2008</b> | 31,169   | 5,350         | 1,794          | 36,519                       | 37,600                           | 1,081             |
| <b>2009</b> | 35,915   | 2,718         | 1,776          | 38,633                       | 39,800                           | 1,167             |
| <b>2010</b> | 34,425   | 3,184         | 1,655          | 37,609                       | na                               | na                |
| <b>2011</b> | 34,438   | 2,987         | 1,636          | 37,425                       | na                               | na                |

**Notes** Information provided by the California Strawberry Commission.

1 Acreage estimates from the California Strawberry Commission's Annual survey. Fall = fall planted, Summer = summer planted)

2 Total = Fall acres + Summer acres

3 CDFA acreage estimate from CDFA Annual Resource Directory : <http://www.cdffa.ca.gov/statistics/>

4 Acreage difference between CSC and CDFA estimates = CSC estimate - CDFA estimate.

**ISSUE #3:** The third issue that the U.S. would like to address is the lack of research data on Midas™ (iodomethane plus chloropicrin) at the rates registered in California. Recent data from strawberry grower test plots in California (California Strawberry Commission, 2011) suggest that under areas of high pest pressure that Midas™ may lead to losses of 7 to 18 percent compared to methyl bromide (see Table 12). This grower trial was applied as broadcast treatments with 2 replications of 5 bed plots. The Midas 33:67 treatments had a 7-18% reduction in yield compared to the methyl bromide and PicClor 60 controls. The grower-observed yield reduction may be attributed to phytotoxicity that was observed in the Midas treatments.

**Table 12. Marketable yield and difference in yield compared to methyl bromide in Oxnard California during the 2010-2011 season.**

| Treatment                     | Marketable Fruit (g) | Difference from MeBr (%) |
|-------------------------------|----------------------|--------------------------|
| MeBr:Pic (50:50) 350 lb/acre  | 209,867              | 0                        |
| Midas:Pic (33:67) 200 lb/acre | 194,928              | -7                       |
| Midas:Pic (33:67) 250 lb/acre | 171,473              | -18                      |
| Midas:Pic (33:67) 300 lb/acre | 180,360              | -14                      |
| PicClor 60 250 lb/acre        | 211,183              | -.6                      |
| PicClor 60 350 lb/acre        | 209,877              | 0.0                      |

**Note:** 1. All three Midas treatments had significant phytotoxicity symptoms on the strawberry foliage.

**ISSUE #4:** During the MBTOC and U.S. bilateral in Turkey the impact of the Midas™ (iodomethane plus chloropicrin) buffer requirements in California were discussed. An analysis was recently conducted by the California Strawberry Commission using County Agricultural Commissioner farm data and a GIS system to calculate buffer zone impacts on a farm-by-farm basis. The U.S. EPA has proposed that in California it will make the future methyl bromide buffer equal to the currently used California buffer zones except for additional restrictions for difficult to evacuate sites. New labels for all fumigants, including methyl bromide, which specify buffer distances around fumigated fields, should be in place by 2012. This analysis was conducted using the “new” methyl bromide label restrictions (300 lbs of 50:50 MB:PIC: 60 feet for 5 acre block, 100 feet for 10 acre block and 1/8 mile for difficult to evacuate sites). The Midas analysis used the current California buffer zones restrictions (300 lbs of Midas 33:67 broadcast; 265 feet for 5 acre block, 445 feet for 10 acre block and ½ mile for difficult to evacuate sites). A summary of the buffer zone impacts is presented (see Table 13). This analysis shows that the impacts of the new methyl bromide buffer zones will be minimal with only a 2% loss in acreage compared to a 30-40% loss with applications of methyl iodide. These buffer impacts may restrict the amount of methyl iodide that can be used for California strawberry fruit.

**Table 13. Estimated percentage of acres that cannot be treated due to buffer zone and label restrictions for methyl iodide and methyl bromide on a representative set of farms located within 3 miles of Salinas, CA.**

| Fumigation Type                 | Buffer Zone Acreage That Cannot Be Treated |                     |                            | Total Acreage Impacted (%) |
|---------------------------------|--|---------------------|----------------------------|----------------------------|
|                                 | 5 Acre Application                         | 10 Acre Application | Difficult to Evacuate Site |                            |
| Methyl bromide <sup>1</sup>     | 0.0 %                                      | 2 %                 | 2.1%                       | 2 – 4 %                    |
| Methyl iodide <sup>2</sup>      | 35%  | 40 %                | na <sup>3</sup>            | 35 – 40 %                  |
| Methyl iodide drip <sup>3</sup> | 30 %                                       | 32 %                | na                         | 30 – 32 %                  |

- Notes:**
- 1 300 lbs 50:50 MB:PIC broadcast application (60 ft buffer for 5 acres and 100 ft buffer zones for 10 acres). 1/8 mile buffer for difficult to evacuate sites.
  - 2 300 lbs 33:67 Midas broadcast application (265 ft buffer for 5 acres and 445 ft buffer for 10 acres). 1/2 mile buffer for difficult to evacuate site already added to each block size)
  - 3 Difficult to evacuate site buffer already incorporated into totals under the 5 and 10 acre application blocks.
  - 4 200 lbs Midas Gold drip application. 1/2 mile buffers already included.

**ISSUE #5:** The final California strawberry fruit issue the U.S. would like to address is the disagreement between the amount of methyl bromide nominated by the U.S. and the amount the California Strawberry Commission thought was needed. The minority members of MBTOC noted in the May 2011 TEAP report (page 157): “The CSC advised MBTOC that it was “in dispute” with the US nomination of 531.737 tonnes, as it believed the nominated amount for California in 2013 should be 685.896 tonnes of methyl bromide. This larger quantity was more than the amount approved by the Parties for producing strawberry fruit in California in 2012.” The United States would like to reiterate that the official U.S. nomination for California strawberry fruit remains at 531,737 kg of methyl bromide.

## Tomato

MBTOC (TEAP 2011) recommends an amount of 10.741 tonnes for this use in 2013, provided the Party submits further explanation on the specific issues that have arisen for the alternatives by July 15th, 2011. If substantiation is not provided, MBTOC does not recommend this nomination. The USG may either support or withdraw this nominated sector at the OEWG. If the US proposes an increased amount, MBTOC will need to reassess. Of the nominated amount, 0.1 t is for Maryland, 0.129 t for Virginia, 1.633 t for SE, 0.776 t for Georgia, and 8.331 t for Florida.

## **U.S. Reply**

**The United States is requesting that MBTOC recommend the amount nominated for Georgia and Florida tomatoes in the U.S. Nomination for one final year (2013).**

For Georgia, the U.S. review of the available information indicates that small growers (growing less than 4 ha or 10 acres of this crop) need an additional year to successfully transition to the alternatives. These small growers do not have as much experience with the alternatives and need to convert their equipment to the 3-Way mixture (1, 3-dichloropropene plus chloropicrin plus metam). The United States conducted an economic assessment of small grower’s ability to convert their equipment (see Table 14 below). The assessment demonstrates that despite the 3-Way mixture being more affordable than MeBr plus chloropicrin on a per acre basis, retrofitting farm equipment to use the 3-Way mixture at a cost of \$ 3450 (Culpepper, 2011) is not affordable for growers under four acres, amortized over 10 years at 7% interest (7% is a current home equity loan rate for this region, interest on agricultural loans could be lower). However, due to variations in impacts for individual growers and uncertainties in the assumptions used in this economic analysis, farms less than 10 acres are reasonably expected to incur negative impacts from having to convert to the 3-Way mixture. Small farms of this size in Georgia are a very small subset of vegetable growers and account for 10 to 15% of the vegetable farms (Census of Agriculture, 2007). There are currently no commercial fumigation/applicators in Georgia so these applications cannot be done by someone else.

**Table 14. Comparison of the Costs of Using Methyl Bromide versus the GA 3-Way on a 3, 4, and 10-Acre Tomato Farm in Georgia**

| Alternatives  | 3 Acre Farm |           | 4 Acre Farm |           | 10 Acre Farm |            |
|---|-------------|-----------|-------------|-----------|--------------|------------|
|   | MeBr:Pic    | 3-Way Mix | MeBr:Pic    | 3-Way Mix | MeBr:Pic     | 3-Way Mix  |
| Gross Revenue   | \$ 70,830   | \$ 70,830 | \$ 94,440   | \$ 94,440 | \$ 236,101   | \$ 236,101 |
| Total Operating Costs   | \$ 70,002   | \$ 69,484 | \$ 93,337   | \$ 92,646 | \$ 233,341   | \$ 231,614 |
| Net Revenue   | \$ 828      | \$ 1,346  | \$ 1,104    | \$ 1,795  | \$ 2,759     | \$ 4,487   |
| Difference between Net Revenue Earned per Farm When Applying MeBr vs. Net Revenue Earned When Applying 3-Way & Accounting for Cost to Retrofit* | N/A         | \$ (106)  | N/A         | \$ 67     | N/A          | \$ 1,104   |

**Notes:** EPA assumes retrofitting costs of \$ 3450 are amortized over a 10 year period at 7%, compounded. This interest rate is based on the assumption that farmers would be subject to the same interest rates as those on a home equity loan, which currently in Georgia for a 10-year loan are approximately 7%.

Florida surveyed several growers to find out their experience in 2010 with alternatives (see Table 15). The survey demonstrates that some growers are still experiencing impacts when using the alternatives. The individuals responding to the survey describe impacts such as yield loss, cost increases, or longer plant back intervals when using the alternatives. Allowing the use of methyl bromide through 2013 will provide time for Florida growers to adapt their systems to the use of the alternatives (different fumigants, potentially an herbicide treatment under the tarp, longer plant back interval, different films, etc.).

**Table 15. Florida Survey Data on Alternatives**

| CROP     | Percent of Acres Surveyed | Impact * % (range) |
|----------|---------------------------|--------------------|
| Eggplant | 4                         | Not listed         |
| Pepper   | 4                         | -9 % (0 to 20)     |
| Tomato   | 28                        | -8 % (0 to 25)     |

**Notes:** \* Impact was interpreted by respondents as yield loss, cost increase, or longer plant back intervals leading to missing a market window.

### **Dried Meat Products**

MBTOC (TEAP 2011) is unable to assess this CUN pending the receipt of the results of large scale trials to be conducted in spring and summer of 2011 and 2010. The Party had nominated 3.730 tonnes, the amount nominated by the Party, for use in cured pork sector in 2013. This is the same amount granted by the Parties for this use in 2012.

### **U.S. Reply**

**The United States is requesting that MBTOC recommend the amount nominated for dried meat products in the U.S. Nomination.**

The first large-scale tests for dried meat products took place in May of 2011. In order to control for temperature and weather the next tests are scheduled for September and October of 2011 (once it cools down) (Schilling and Phillips, 2011). The data from those trials should be available in November or December of 2011. The researchers need replicated experiments (May, September, and October) before the statistical analysis can be run. If phosphine works in multiple commercial settings for more than one season the United States believes that it will take at least 2 years to develop the logistical and practical use in the dried meat industry to ensure the widespread adoption of phosphine in the industry.

Large-scale testing was not conducted in 2010 because additional testing was needed in the laboratory to determine if greater concentrations of phosphine were needed to kill larger sample populations of ham mites at all life stages (Schilling and Phillips, 2011). The United States submitted the results of the 2010 studies with our nomination package submitted in January 2011. Studies so far suggest that concentrations would need to be above 1000 ppm for exposure times longer than 48 hours for studies that are conducted in commercial settings.

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